

Butterfly Report for Neal Smith National Wildlife Refuge 2003

During the summer of 2003 a 4th of July butterfly survey was conducted at the Neal Smith National Wildlife Refuge in Jasper County, Prairie City, Iowa. The sites included the Tallgrass Trail, the Savanna Trail and the Basswood Trail. The count was taken on July 19, 2003. This was the only day observations were made for this year.

Field notes and photographs were taken during the surveys at each site. Butterflies, plants and plant association were noted. No butterflies were netted or taken as specimens. Unknown or hard to identify butterflies were photographed by a Pentax camera with a 28-300 mm Macro Tamron zoom lens. Butterflies were then identified at home once the pictures were developed. Butterflies were identified according to Scott (1980), Heitzman and Heitzman (1987), Shull (1987) and Glassberg (1999).

Other factors noted were: date, time, and weather conditions. The weather conditions recorded included whether it was sunny, partly cloudy, cloudy or raining. An approximation of the wind was noted as calm, light or strong.

It does need to be noted that in 2003 the Tallgrass Trail had be mowed out from the trail from 6 to 8 feet along most of the trail. In some places this greatly reduced Horsemint *Monarda fistulosa* and other flower species used by the butterflies. This wider area also made it much harder to identify butterflies on both sides of the trail.

RESULTS AND DISCUSSION

Species present

Table 1. Numbers of butterflies seen per site during 2003

	TALLGRASS TRAIL	SAVANNA TRAIL	BASSWOOD TRAIL	TOTAL
# SPECIES	11	1	6	
# INDIVIDUALS	64	1	6	71
TRAIL LENGTH	2.0 miles	0.5 miles	0.5 miles	

As can be seen from Table 1. the Tallgrass Trail had 11 different species, the Savanna Trail had 1 species, and the Basswood Trail had 6 species. The larger number of different species at the Tallgrass Trail would be expected because of its longer length and more diverse habitat. For the same reason there were more individuals found along the Tallgrass Trail (64) than along the Savanna Trail (1) and Basswood Trail (6). Twelve different species were observed when all sites were combined.

Table 2. Most numerous butterflies seen per site during 2003.

	TALLGRASS TRAIL	SAVANNA TRAIL	BASSWOOD TRAIL
Eastern Tailed Blue	23	0	1
Cabbage White	9	1	1

Table 2 lists the most numerous butterflies per site. Any butterflies present at any site were added even though the species may not have been abundant so a comparison between sites could be viewed. The Eastern Tailed Blue was the most numerous butterfly found on the Tallgrass Trail (23) and the Basswood Trail (1). The Cabbage White was observed 9 times on the Tallgrass Trail and once along the Savanna Trail and once along the Basswood Trail.

See Table 3 for a complete list of all butterflies present in 2003. The totals of all individual species are found in the right hand column. Only the more common butterflies were found in large numbers. Less common species of butterflies were probably seen less often because they are usually found in lower numbers.

Table 3. Species of butterflies present and expected at each site 2003.

SPECIES PRESENT	Tallgrass Trail	Savanna Trail	Basswood Trail	Total
Black Swallowtail <i>Papilio polyxenes</i>	4			4
Eastern Tiger Swallowtail <i>Papilio glaucus</i>	2			2
Checkered White <i>Pontia protodice</i>				
Cabbage White <i>Pieris rapae</i>	9	1	1	11
Clouded Sulfur <i>Colias philodice</i>	6		1	7
Orange Sulfur <i>Colias eurytheme</i>	3			3
Little Yellow <i>Euremalisa</i>	2			2
Gray Copper <i>Lycaena dione</i>				
Bronze Copper <i>Lycaena hyllus</i>				
American Copper <i>Lycaena phlaeas</i>				
Coral Hairstreak <i>Satyrium titus</i>				
Banded Hairstreak <i>Satyrium calanus</i>				
Edward's Hairstreak <i>Satyrium edwardsii</i>				
Gray Hairstreak <i>Strymon melinus</i>				
Spring Azure <i>Celastrina landon</i>				
Eastern Tailed-Blue <i>Everes comyntas</i>	23		1	24
Variegated Fritillary <i>Euptoieta claudia</i>				
Great Spangled Fritillary <i>Syeyeria cybele</i>			1	1
Meadow Fritillary <i>Boloria bellona</i>				
Silvery Checkerspot <i>Chlosyne nycteis</i>				
Pearl Crescent <i>Phyciodes tharos</i>	4		1	5
Question Mark <i>Polygonia interrogationis</i>				
Eastern Comma <i>Polygonia comma</i>				
American Lady <i>Vanessa virginiensis</i>				
Painted Lady <i>Vanessa cardui</i>				
Red Admiral <i>Vanessa atalanta</i>	3		1	4
American Snout <i>Libytheana carinenta</i>				

Table 3 continued from previous page

SPECIES PRESENT	Tallgrass Trail	Savanna Trail	Basswood Trail	Total
Common Buckeye <i>Junonia coenia</i>				
Red-spotted Purple <i>Limenitis arthemis astyanax</i>				
Viceroy <i>Limenitis archippus</i>				
Hackberry Emperor <i>Asterocampa celtis</i>				
Tawny Emperor <i>Asterocampa clyton</i>				
Common Wood Nymph <i>Cercyonis pegala</i>	2			2
Eyed Brown <i>Satyroides eurydice</i>				
Little Wood Satyr <i>Megisto cymela</i>				
Monarch <i>Danaus plexippus</i>	5			5
? Copper				
? Swallowtail				
? Fritillary				
Silver-spotted Skipper <i>Epargyreus clarus</i>				
Checkered Skipper <i>Pyrgus communis</i>				
Delaware Skipper <i>Anatrytone logan</i>				
? Hairstreak				
? Comma				
? Satyrid				
Giant Swallowtail <i>Papilio cresphontes</i>				
? Skipper	1			1
? Butterfly				
? Nymphalid				
TOTAL	64	1	6	71

INDIVIDUALS PRESENT

The Eastern Tailed-Blue is very common and would be expected to be found in large numbers. It uses members of the Fabaceae as a food source.

Clouded Sulfurs are found in open fields, roadsides and suburban areas. They are common and have multiple broods. Their food sources are from members of the Fabaceae family.

COMPARISON BETWEEN 2001, 2002 and 2003

Table 4. Comparison of numbers of butterflies seen per site on Fourth of July butterfly Count during July 22, 2001, July 13, 2002 and July 19, 2003.

	TALLGRASS TRAIL	SAVANNA TRAIL	BASSWOOD TRAIL	TOTAL
# SPECIES-2001	14	7	10*	
# SPECIES-2002	17	5	4	
# SPECIES-2003	11	1	6	
# INDIVIDUALS 2001	174	24	37*	235
# INDIVIDUALS 2002	100	14	17	131
# INDIVIDUALS 2003	64	1	6	71
TRAIL LENGTH	2.0 miles	0.5 miles	0.5 miles	

Data from Stephanie Shepherd Fourth of July Butterfly Count July 22, 2002.

Looking at Table 4 there were 14 different species of butterflies on the Tallgrass Trail in 2001, 17 in 2002 and 11 in 2003. The Savanna Trail had 7 in 2001, 5 in 2002 and 1 in 2003. The Basswood Trail had 10 in 2001, 4 in 2002 and 6 in 2003. Data marked with an * was provided by Stephanie Shepherd. As can be seen in Table 4 the number of different species dropped for each site in 2002 and 2003 from 2001.

In 2002 the Tallgrass Trail had 174 individuals, 100 in 2002 and 64 in 2003. The Savanna Trail had 24 in 2001, 14 in 2002 and 1 in 2003. The Basswood Trail had 37 in 2001, 17 in 2002 and 6 in 2003. As can be seen in Table 4 the number of individual species dropped for each site in 2002 and 2003 from 2001.

The American Painted Lady was not seen in 2002 or 2003. This butterfly tends to have boom and bust years and this may have been a bust year. Fewer of the hairstreaks and skippers were found but that may not be significant since these butterflies tend to be more wary and rare. The number of the Pearl Crescent were also much lower. The numbers of the Eastern Tailed-Blue were only slightly lower. This species appears to have been able to handle the harsher summer. The only species that appeared to increase in numbers were the Clouded Sulfur.

Differences in 2001, 2002 and 2003 number of species and the number of individuals could be explained in several different ways. The summer of 2002 was warmer and dryer than normal and this may have affected the numbers of individuals. While there were no days when temperatures were in the triple digits there were many days in June and July where temperatures were in the 90's or above. This was unusual. 2002 was also a dry year with a shortage of rainfall. The weather conditions may have affected the number of individuals and species present. In 2003 there was also a time of drought.

The weather on the day of the 2003 survey needs to be mentioned. While the day started out being thirty percent overcast, as the day progressed the sky became more overcast until by the time the survey was finished it was one hundred percent overcast. The increase in cloud cover may have affected the numbers of butterflies seen as the day went on since the Tallgrass Trail was viewed first, Savanna Trail second and then the Basswood Trail. The weather may well have affected all of the number of butterflies seen. If the day had be sunny they may have been many more butterflies.

Another reason may have been that some of the species were between brood times with only a few representatives living at the time of the count. The survey may have been done at the wrong time. Or the lower numbers may be a true reflection of fewer butterflies present this year.

It might be wise next year to survey butterflies in additional new areas to get a better idea of what is really present at the Refuge. In 2002 and 2003 people have stated they have seen numerous butterflies at the Refuge which seems to be the opposite of what has been surveyed.

It should be noted this survey is only just that. Additional data over the years will provide more specific information about trends such as number of species and individuals present at the refuge. Butterfly numbers are usually in a state of flux as are all biological organisms depending upon rainfall, temperature and other species present. It will be interesting to see what species and individuals are present next year.

BIBLIOGRAPHY

Glassberg, J. 1999. Butterflies through binoculars the East. Oxford University Press. Oxford New York. 242 pp.

Heitzman, R.J. and J. E. Heitzman. 1987. Butterflies and moths of Missouri. Missouri Department of Conservation. 385 pp.

Scott, J. A. 1986. The butterflies of North America. Stanford University Press, Stanford California. 583 pp.

Shull, E.M. 1987. The butterflies of Indiana. Indiana Academy of Science, Bloomington, Indiana. 262 pp.